

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference 9533WO/NW/MZ | FOR FURTHER ACTION See Form PCT/IPEA/416 | |
| International application No. PCT/SE2004/001040 | International filing date (day/month/year) 24-06-2004 | Priority date (day/month/year) 26-06-2003 |
| International Patent Classification (IPC) or national classification and IPC B25J 17/02 | | |
| Applicant ABB AB ET AL | | |
| 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____; containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). 4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application | | |
| Date of submission of the demand 25-01-2005 | Date of completion of this report 15-03-2005 | |
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Form PCT/IPEA/409 (cover sheet) (January 2004)

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2004/001040

Box No. 1 Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|-------------|-----|
| Novelty (N) | Claims | <u>1-32</u> | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | <u>1-32</u> | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | <u>1-32</u> | YES |
| | Claims | | NO |

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US 4 690 012 A
D2: US 4 708 580 A
D3: EP 0 631 853 A1

Document D1 discloses a robot wrist for use with an industrial robot. The wrist comprises three independently rotatable wrist parts arranged in series with each other. The wrist contains a protection hose in a hollow structure and axis of rotation for gear members to drive movements between the first, second and third wrist parts. The joint and gearing between the meshing gear pair of a first and a second wrist part is inclined to cause coordinated rotation there between (see whole document).

Document D2 discloses a three-axis wrist mechanism with three independent rotational axes. A first pair of the axes has a first point of mutual intersection and a second pair of the axes with a second point of mutual intersection offset from the first point. Bevel gear means are provided for independent rotation of the wrist mechanism in relation to the mutual intersections (see whole document).

Document D3 discloses a robot wrist for use with an industrial robot arm. The wrist is independently rotatable in three axes in series with each other driven by a gear mechanism (see whole document).

The invention according to claims 1-32 differs from what is known in D1-D3 by the redesigned gear wheel set-up for a robot

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

In claim 1 the reference "yes" is not indicated with clarity for the technical feature of the invention. Therefore, the reference should be deleted.

The reference value "0" is inconsistency as a negative bevel angle, according to the determination of claim 1. Therefore, the reference "0" in claim 3 is contradictory to the referred and dependent invention of claim 1. Further, claim 3 defines the negative bevel angle in a range between "0...-20 degrees". The description does not mention or specify any embodiment of a technical feature related to the claimed range interval. It is not considered obvious and clear for the negative bevel angle to lie in a range interval from 0...-20 degrees. Therefore, claim 3 shall be removed.

The references for drawings 6a and 6b are inverted according to the description. The references and technical feature in description and drawings concerning "figures 6a and 6b" should be adjusted to the statement which it refers to.